

TWELVE NEW SPECIES OF GENUS *PACHYPROTASIS* HARTIG (HYMENOPTERA, TENTHREDINIDAE: TENTHREDININAE) FROM INDIA¹

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(With fifty-eight text-figures)

Key words: New species, *Pachyprotasis* Hartig, new synonymy, revised key, Hymenoptera, India.

Twelve species new to the genus *Pachyprotasis* Hartig are added to Indian fauna. Described and illustrated as new are: *P. maculiventris*, *P. kulwantae*, *P. cephalopunctata*, *P. politus*, *P. cuneativentris*, *P. nigricans*, *P. salebrousa*, *P. hargurmeeti*, *P. foveatus*, *P. pleuricingulata*, *P. punamae* and *P. frontatus*. Seven subspecies viz. *P. birmanica tristis* Malaise, *P. birmanica eburnipes* Malaise, *P. opacifrons subpunctata* Malaise, *P. albicincta nigripleuris* Malaise, *P. albicincta albitarsis* Malaise, *P. albicincta sinobrimanica* Malaise and *P. caerulescens kashmirica* Malaise have been merged into their respective species. A key for identification of all the Indian species is provided.

INTRODUCTION

After Malaise's (1945) revisionary work on Tenthredinoidea of southeast Asia, Saini and Kalia (1989) attempted to update Indian fauna of the genus *Pachyprotasis* Hartig by recording 9 species for the first time from this region and describing 9 species as new to science. The major contributors to Indian fauna of this genus are: Malaise (1934, 1945) with 9 species and 2 subspecies, Singh *et al.* (1987) with 4 species, Forsius (1933) with 4 species, Cameron (1876, 1881, 1889, 1902) with 4 species, Saini and Kalia (1989) with 9 species, Rohwer (1916) and Linnaeus (1767) each with one species. Seven subspecies have been merged into their respective species. Since the name *P. malaisei* Singh *et al.* was preoccupied, Saini and Vasu (1995) renamed it as *P. punctulatis*. In the present text twelve species have been illustrated and described. A workable key for identification of all Indian species is provided. Type materials of new species are housed at Division of Entomology, Pusa National Collection, Indian

Agricultural Research Institute, New Delhi. Abbreviations used in text are: EL = eye length; IATS = inner apical tibial spur; ICD = inter cenchri distance; IDMO = interocular distance at level of median ocellus; ITD = inter tegular distance; LID = lower interocular distance; MB = metabasitarsus; OATS = outer apical tibial spur; OCL = oculo-occipital line; OOL = oculo-ocellar line; POL = postocellar line.

KEY TO INDIAN SPECIES OF *PACHYPROTASIS* HARTIG

1. Antenna ringed (two or three middle joints of different colour than apical and basal joints). 2
- Antenna not ringed 6
2. Head almost impunctate 3
- Head with large, distinct punctures and surface between them microsculptured
..... *sikkimensis* Saini & Kalia
3. Antennal segment 3 shorter than 4 4
- Antennal segment 3 longer than 4
..... *birmanica* Forsius
..... *birmanica tristis* Malaise syn. nov.
..... *birmanica eburnipes* Malaise syn. nov.
4. Supraantennal tubercles insignificant or low. 5
- Supraantennal tubercles raised, quite prominent and abruptly cut off from frontal ridges
..... *versicolor* Cameron

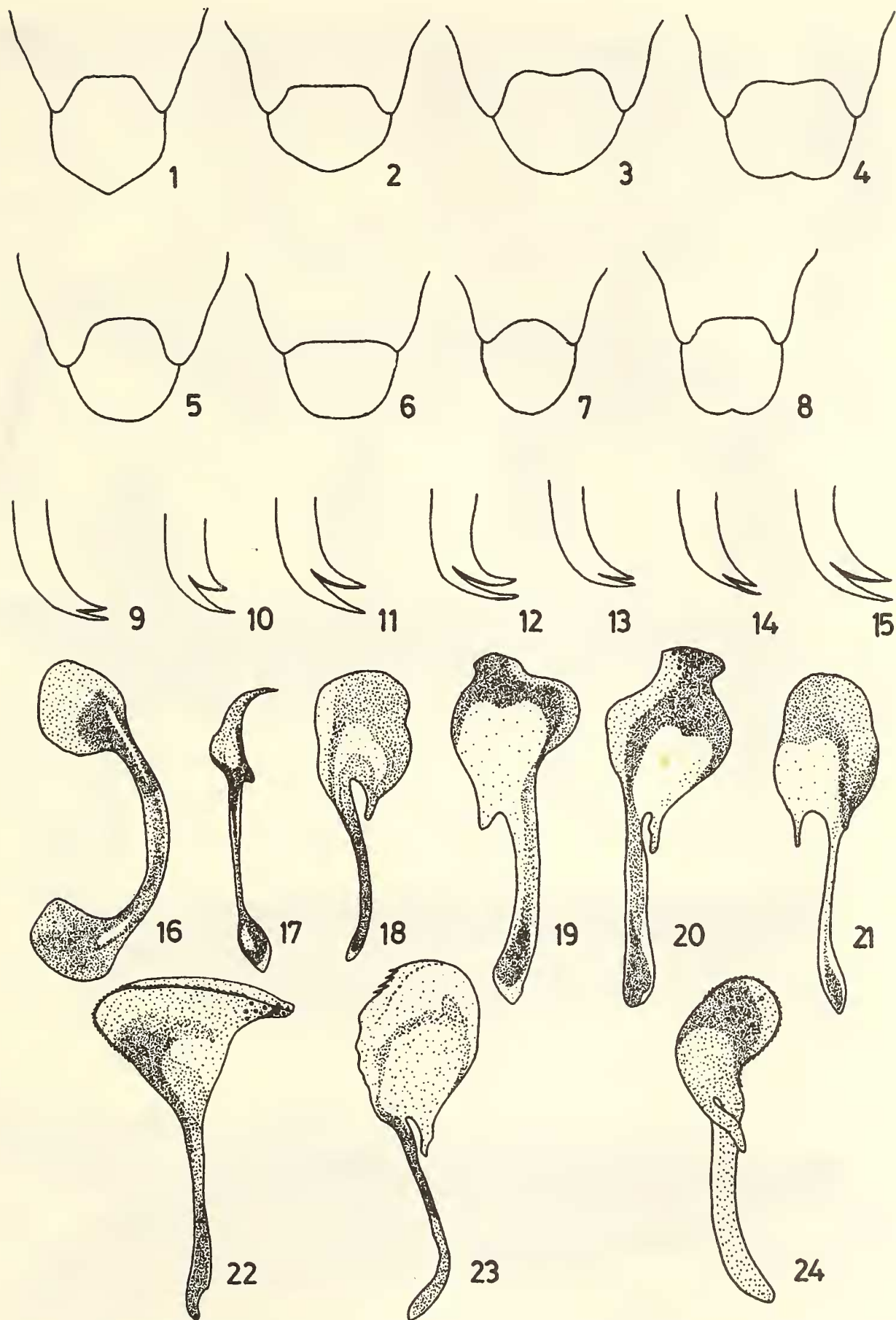
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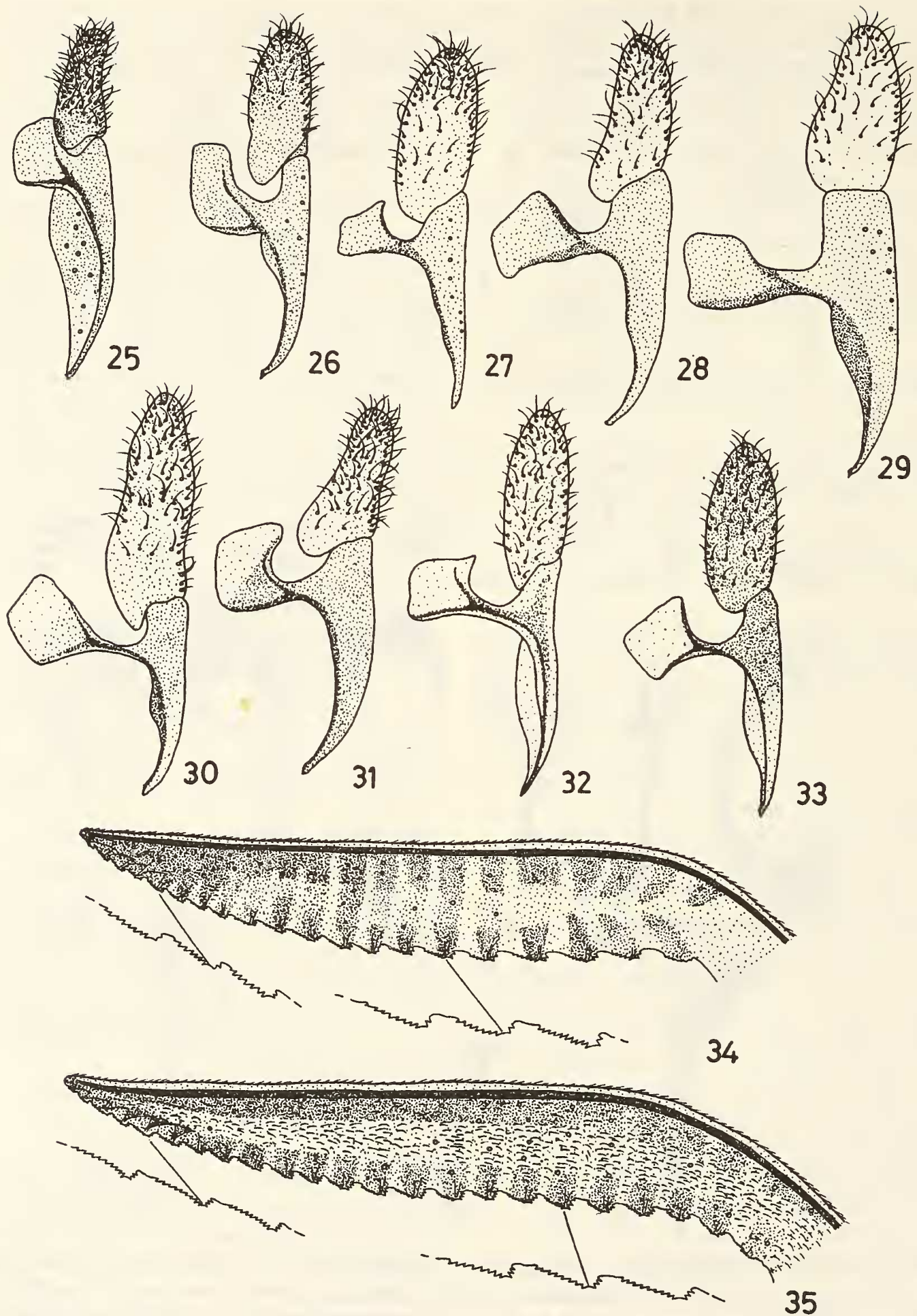
5. All coxae sanguineous, almost without black (in male pro- and mesocoxae stramineous, without black); antennal joints 6 and 7 white; postocellar furrow wanting; stigma fulvous ...
..... *multilineata elineata* Malaise
- All legs pale with black markings, without reddish; antennal joints 5 and 6 yellowish; postocellar furrow present; stigma black with pale anterior margin *alboannulata* Forsius
6. Antenna unicoloured or with narrow pale stripe along underside 7
- Apical 3 antennal joints black, rest reddish...
..... *indica* (Forsius)
7. Antenna black 8
- Antenna fulvous .. *kalatopensis* Saini & Kalia
8. Abdomen with reddish spots 9
- Abdomen without reddish spots 10
9. Abdomen reddish brown except central longitudinal streak on tergite 2, infuscated lateral spots more prominent on tergites 3 - 6
..... *indica* (Forsius)
- Abdomen mainly black, tergites 2-5 with large, medial triangular spots, all medially connected to each other *maculiventris* sp.nov.
10. Body except legs pale with few black markings 11
- Body except legs black with some whitish or pale markings 13
11. Postocellar area distinctly wider than long
..... 12
- Postocellar area as long as broad
..... *vittata* Forsius
12. Appendage carinate; head and mesonotum micropunctured with minute and dense punctures; supraantennal pit distinct; antennal segments 3 and 4 as 4:5; inter- and postocellar furrows absent; area posterior to eye pale entirely; pronotum entirely pale; abdomen almost pale *pallens* Malaise
- Appendage not carinate; head and mesonotum impunctate; supraantennal pit indistinct; antennal segments 3 and 4 as 4:3; inter- and postocellar furrows present; black spot posterior to eyes; narrow upper margins of pronotum black; black lining along anterior border of tergites 1-6 *lachenensis* Saini & Kalia
13. Hind legs reddish with few black or pale yellow markings 14
- Hind legs black or pale yellow without reddish 25
14. Antennal segment 3 longer than or subequal to 4 15
- Antennal segment 3 distinctly shorter than 4
..... *manaliensis* Singh *et al.*
15. Mesoscutellum pyramidal (Fig.44) 16
- Mesoscutellum flat (Fig.46) 18
16. Body black with pale lower 1/2 of frontal area; pale orbit around eyes except spot on upper corner of each eye black; pronotum pale except its black posterior margin; pale lateral margins of mesonotal middle lobe meeting at apex; basal 2/3 of metafemur reddish, apical 1/3 pale; postocellar area convex, with median longitudinal furrow; head with few insignificant, scattered punctures
..... *subtilissima* Malaise
- Body black with frontal area entirely black; whitish yellow lower 1/2 of inner orbit continued with lower 1/4 of hind orbit; pronotum entirely black; sagittated apex of mesonotal middle lobe pale; basal 1/2 of meta femur pale, apical 1/2 reddish; postocellar area flat, without medial longitudinal furrow; head with dense, minute punctures 17
17. Supraantennal tubercles distinctly raised; median fovea ditch-like in its anterior 1/2 and posteriorly shallowly reaching median ocellus; mesosternum yellowish in both sexes
..... *kulwantae* sp.nov.
- Supraantennal tubercles just indicated; median fovea shallow in its anterior 1/2 and posteriorly not reaching median ocellus; mesosternum black in female only *subtilis* Malaise
18. Hind legs reddish or fulvous without pale, with black markings 19
- Hind legs reddish with black as well as pale markings 20
19. Body black, yellowish white are: labrum, lateral spots on clypeus, supraclypeal area, 2 dots above bases of antennae, lower 2/3 of hind orbit, inner orbit narrowly connected with elongated temple spot, spot on posterolateral margin of pronotum, anterior half of tegula, small spot on anterolateral margin of mesonotal middle lobe, longitudinal middle band on mesoscutellum, appendage, metascutellum, posterolateral margin of mesepimeron, irregular small spot on anterior slope of mesepisternum, 3/4 of metapleura posteriorly, lateral elongated spot not meeting on anterior margin of tergite

- 2, triangular medial spot on hind margin of tergite 5, tergite 9 entirely, broad hind margin of deflexed sides of all tergites and of all sternites; clypeus roundly incised with somewhat truncate basis, median fovea in form of pit in middle of frontal area
 *maesta* Malaise
- Body black, yellowish are: labrum except large medial spot, temple, narrow hind and lateral margins of deflexed sides of all tergites; clypeus subsquarely incised, median fovea indicated by shallow groove in its anterior half
 *mandalensis* Saini & Kalia
20. Antennal segment 3 distinctly longer than 4; supraantennal pit and median fovea absent ...
 *citrinipictus* Malaise
- Antennal segments 3 and 4 subequal; supraantennal pit present; median fovea distinct or shallow 21
21. Head impunctate; clypeus rectangularly incised
 *punctulatis* Saini & Vasu
- Head punctate; clypeus roundly incised 22
22. Head strongly punctured 23
- Head not strongly punctured
 *cephalopunctata* sp.nov.
23. Punctures of mesonotum and mesoscutellum dense and confluent; mesopleuron rugose; frontal area at level of eyes; supraantennal tubercles low
 *ramgarhensis* Saini & Kalia
- Mesonotum, mesoscutellum and mesopleuron with minute, even and isolated punctures; frontal area below level of eyes; supraantennal tubercles raised 24
24. Body black, pale markings are: large temple spot narrowly connected with complete inner orbit, posterolateral margin of pronotum, spot before mesoscutellum, extreme posterior margin of mesepimeron, spot on anterior slope of mesepisternum, hind margins of all sternites; metafemur reddish except black apex; stigma black; supraantennal pit shallow; postocellar area subconvex with longitudinal middle furrow; median fovea shallow
 *subulicornis* Malaise
- Body black with above said pale markings missing, instead other pale markings which are absent in previous species here are present: a spot on tegula, sagittated apex of mesonotal middle lobe, stripe along pleurosternal suture, lower 1/3 of mesopleuron continuous with entirely fulvous mesosternum; hind margin of sternite 7; basal 1/3 of metafemur yellowish, rest is reddish; stigma dark brown with pale anterior half; supraantennal pit deep and punctiform; postocellar area convex, without longitudinal middle furrow; median fovea deep
 *flavipes* (Cameron)
25. Antennal segment 3 equal to or longer than 4 26
- Antennal segment 3 subequal to or shorter than 4 38
26. Forewings clear 27
- Forewings distinctly infuscated towards apex without sharp limits
 *parapeniata* Singh *et al.*
27. Supraantennal tubercles distinctly raised .. 28
- Supraantennal tubercles insignificant 29
28. Mesoscutellar appendage carinate; postocellar area without longitudinal middle furrow, twice as wide as long; head opaque owing to large, isolated punctures and surface between them micropunctured; mesonotum with distinct and dense punctures, mesopleura with large, isolated punctures on anterior slope; median fovea absent; labrum with rounded anterior margin; apical tooth of claw longer than subapical one.....
 *opacifrons* Malaise
 opacifrons alpestris Malaise syn.nov.
 opacifrons subpunctata Malaise syn. nov.
- Mesoscutellar appendage ecarinate; postocellar area with longitudinal middle furrow, broader than long as 5:2; head shining with minute, scattered punctures; mesonotum with minute, isolated punctures; mesopleura almost impunctate; median fovea depressed, ditch-like; labrum with roundly pointed anterior margin; apical tooth of claw equal to subapical one ...
 *icari* Saini & Kalia
29. Stigma pale (mesoscutellum roundly raised with hind apex somewhat incised; frontal area below level of eyes; mesopleura with indistinct, shallow punctures; median fovea absent; apical tooth of claw subequal to subapical one)
 *subcoreaceous* Malaise
- Stigma dark brown to black 30
30. Punctures on mesopleura minute, shallow and isolated 31
- Punctures on mesopleura large, distinct and confluent 32

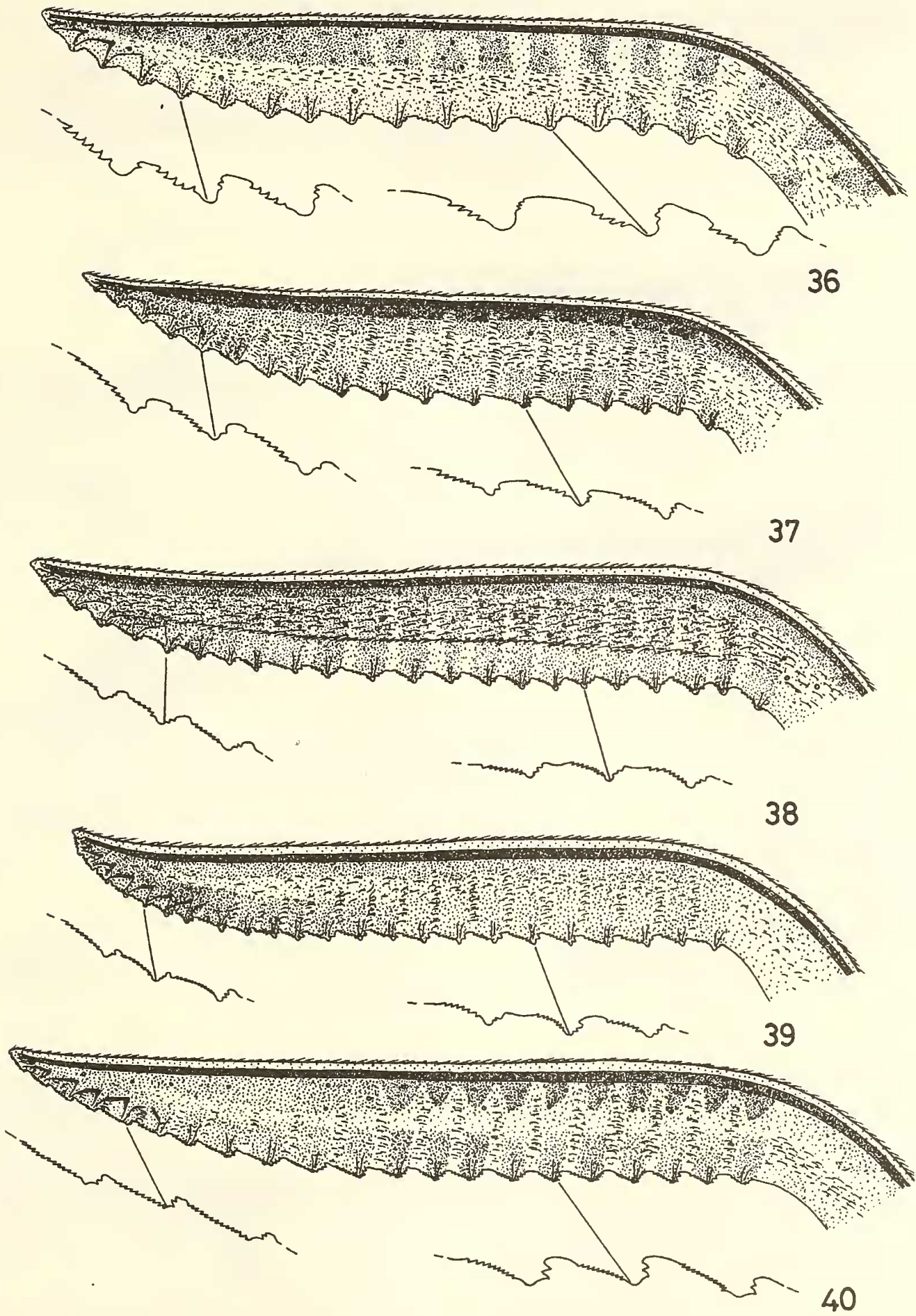
31. Yellowish are: broad posterior margin of propodeum and posterior margin of tergites 2-6; POL:OOL:OCL = 2:3:3; postocellar area broader than long as 3:2 *politus* sp.nov.
 - Yellowish are: extreme posterior angle of propodeum and tergites 2-7 with triangular medial spots; POL:OOL:OCL = 4:5:5; postocellar area broader than long as 5:4;
 *cuneativentris* sp.nov.
32. Mesonotum, mesoscutellum, appendage and abdomen entirely black *nigricans* sp.nov.
 - Mesonotum, mesoscutellum, appendage and abdomen with some yellowish markings ... 33
33. Mesoscutellum flat; frontal area at level of eyes; apical tooth of tarsal claw distinctly longer than subapical one 34
 - Mesoscutellum subconvex; frontal area below level of eyes; apical tooth of tarsal claw equal to subapical one 37
34. Head subrugose with dense, minute, shallow punctures; abdomen black above
 *salebrousa* sp.nov.
 - Head smooth with few, scattered, irregular, distinct punctures; abdomen not entirely black above 35
35. Mesonotal middle lobe entirely black
 *hargurmeeti* sp.nov.
 - Mesonotal middle lobe with pale markings ...
 36
36. Pale lateral sides of mesonotal middle lobe meeting at apex; median fovea shallow in its anterior half and evenly depressed in its posterior half in form of horse-shoe with raised frontal sides *foveatus* sp.nov.
 - Pale lateral sides of mesonotal middle lobe not meeting at apex; median fovea shallowly indicated in its anterior half only
 *albicineta* Cameron
 albicineta nigripleuris Malaise syn.nov.
 albicineta sinobirmanica Malaise syn.nov.
 albicineta albitarsis Malaise syn. nov.
37. Broad anterior aspect of mesopleura yellowish white and extends as a transverse band in its lower 1/2 upto coxal rim, circumocellar furrow shallow, postocellar area broader than long as 5:4 *pleuricingulata* sp.nov.
 - Broad anterior aspect of mesopleura yellowish white only, circumocellar furrow indistinct, postocellar area broader than long as 3:2
 *punamae* sp.nov.
38. Mesoscutellum flat (Fig.46) 39
 - Mesoscutellum raised (Fig. 45) 42
39. Mesopleura subrugose; apical tooth of claw shorter than subapical one (median fovea reaching median ocellus) *brunetti* Rohwer
 - Mesopleura not subrugose; apical tooth of claw at least as long as subapical one 40
40. Median fovea reaching median ocellus; apical tooth of claw as long as subapical one
 *frontatus* sp.nov.
 - Median fovea not reaching median ocellus; apical tooth of claw longer than subapical one 41
41. Supraantennal tubercles low, supraantennal pit deep, median fovea obsolete
 *longomalari* Singh et al.
 - Supraantennal tubercles raised, supraantennal pit obscure, median fovea grooved and not reaching median ocellus
 *bengalensis* Saini & Kalia
42. Postocellar area without median longitudinal furrow 43
 - Postocellar area with median longitudinal furrow *rapae* (Linneaus)
43. Head punctured and surface between punctures microsculptured 44
 - Head with scattered punctures and without microsculpture 45
44. Malar space 1x diameter of median ocellus, circum- and interocellar furrows present, postocellar furrow absent, mesoscutellum strongly elevated with extreme apex mostly divided by furrow *caerulescens* Malaise
 caerulescens kashmirica Malaise syn. nov.
 - Malar space 2x diameter of median ocellus, circum- and interocellar furrows absent, postocellar furrow present, mesoscutellum subconvex. *P. muelleri* Saini & Kalia
45. Frontal area black entirely; lower half or more of hind and inner orbits pale, sometimes inner orbit narrowly connected with pale temple spot; apex of mesonotal middle lobe pale; all tergites black above. Legs pale, black are: four front tibiae and tarsi posteriorly; apex of metafemur above and metatibia and tarsi entirely; postocellar area flat
 *violaceidorsata* Cameron
 - Frontal area with large pale spot above antennae; broad hind orbit around eyes pale except area posterior to eyes; lateral corner of



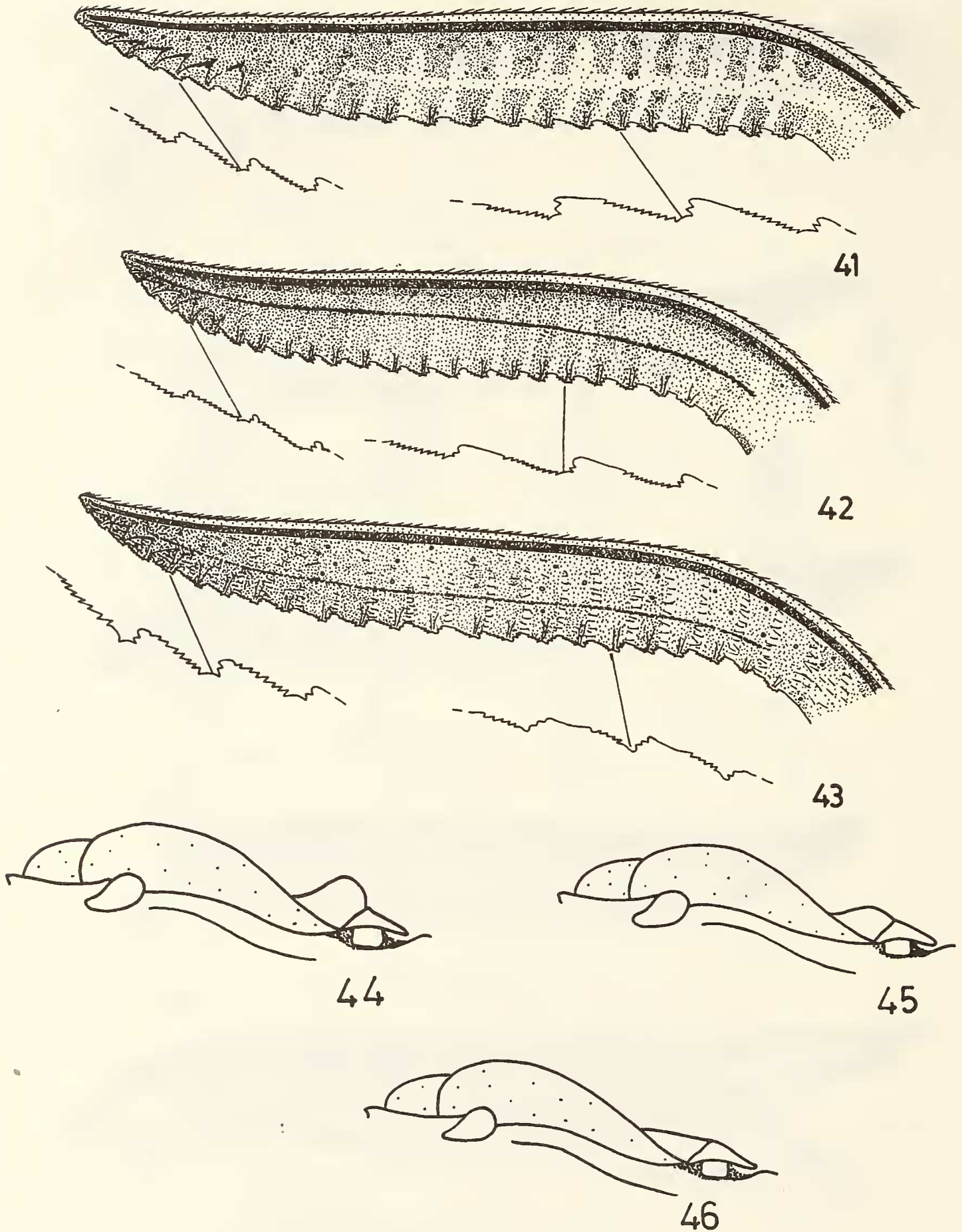
Figs.(1-24) Clypeus & labrum: 1. *Pachyprotasis maculiventris*, 2. *P. kulwantae*, 3. *P. nigricans*, 4. *P. pleuricingulata*, 5. *P. punamae*, 6. *P. frontatus*, 7. *P. cephalopunctata*, 8. *P. politus*;
 Tarsal claw: 9. *P. maculiventris*, 10. *P. kulwantae*, 11. *P. nigricans*, 12. *P. punamae*, 13. *P. frontatus*, 14. *P. foveatus*, 15. *P. salebrousa*;
 Penis valve: 16. *P. maculiventris*, 17. *P. kulwantae*, 18. *P. salebrousa*, 19. *P. hargurmeeti*, 20. *P. pleuricingulata*, 21. *P. frontatus*, 22. *P. foveatus*, 23. *P. politus*, 24. *P. cuneativentris*.



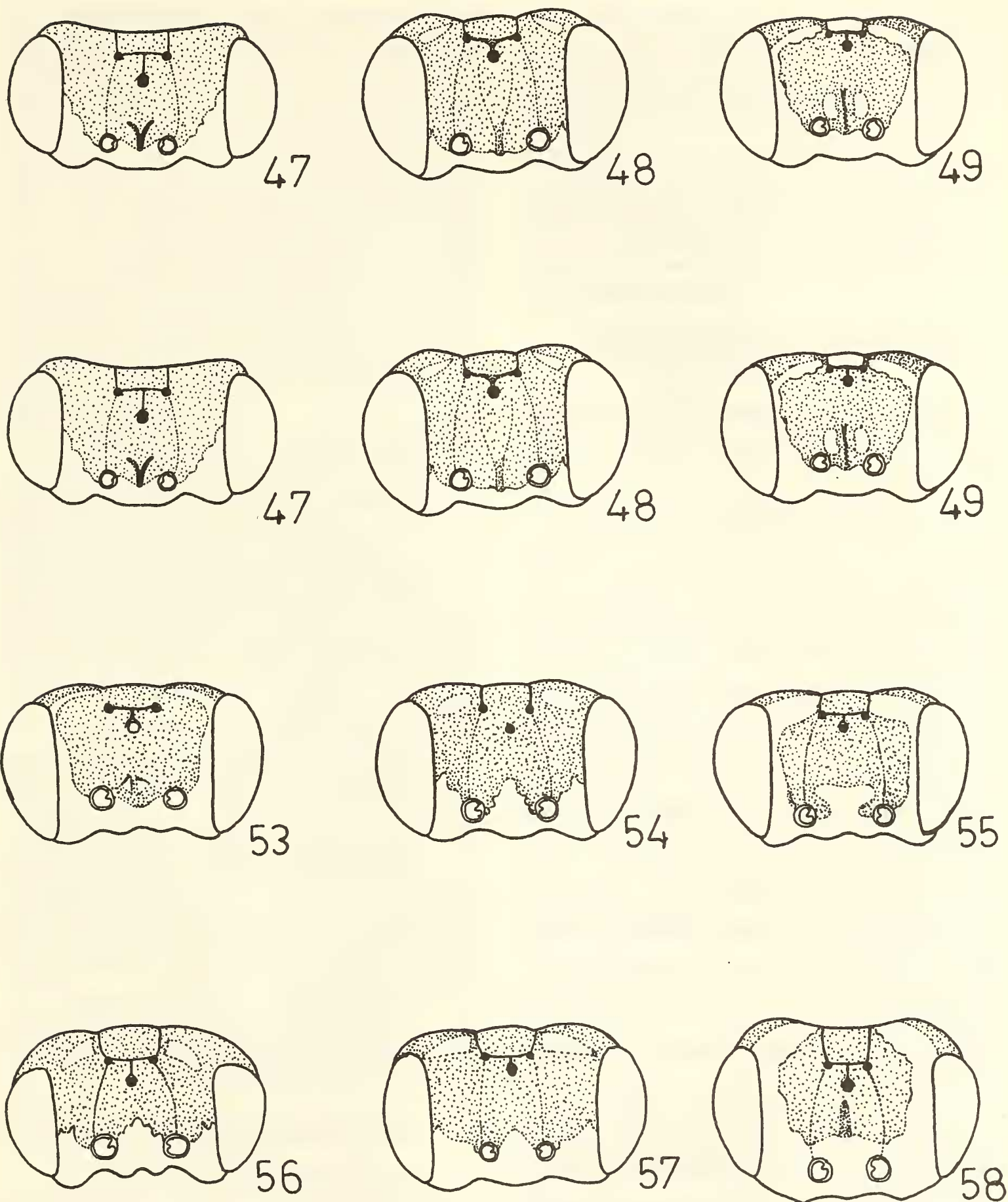
Figs. (25-35) Gonoforceps: 25. *Pachyprotasis maculiventris*, 26. *P. kulwantae*, 27. *P. salebrousa*, 28. *P. hargurmeeti*, 29. *P. pleuricingulata*, 30. *P. frontatus*, 31. *P. foveatus*, 32. *P. politus*, 33. *P. cuneativentris*; Lance: 34. *P. kulwantae*, 35. *P. cephalopunctata*.



Figs. (36-40) Lancet: 36. *Pachyprotasis nigricans*, 37. *P. salebrousa*, 38. *P. hargurmeeti*, 39. *P. foveatus*, 40. *P. pleuricingulata*.



Figs. (41-46) Lanceet: 41. *Pachyprotasis punamae*, 42. *P. politus*, 43. *P. cuneiventris*;
 Lateral view of Thorax: 44. *Pachyprotasis kulwantae*, 45. *P. cuneiventris*,
 46. *P. cephalopunctata*.



Figs. (47-58) Colour pattern of Head: 47. *Pachyprotasis maculiventris*, 48. *P. kulwantae*, 49. *P. cephalopunctata*, 50. *P. politus*, 51. *P. cuneativentris*, 52. *P. nigricans*, 53. *P. salebrousa*, 54. *P. hargurmeeti*, 55. *P. foveatus*, 56. *P. pleuricingulata*, 57. *P. punamae*, 58. *P. frontatus*.

mesonotal middle lobe reaching apex pale; tergites black above with pale are: irregular lateral spots along posterior border of propodeum, posterior border in middle of tergites 2-6, tergite 9 entirely. Legs pale, black are: outer stripe from base of femur to apex of claw joint in front four legs, spot on metacoxa, outer and inner stripe on apical half of metafemur, rest of metaleg except narrow anterior stripe on tibia; postocellar area convex
 *manganensis* Saini & Kalia

***Pachyprotasis maculiventris* sp.nov.**

(Figs. 1,9,16,25,47)

Male: Colour: Body black, yellowish white are: underside of scape, clypeus except a basal medial stripe, labrum, mandible, a spot on supraclypeal area extending beyond base of antennae, broad inner and hind orbits except upper 1/4 (Fig. 47); broad posterolateral and streak-like posterodorsal margin of pronotum, tegula except extreme apex, anterolateral oval spot on mesonotal middle lobe, a spot on mesoscutellum, a transverse stripe on lower half of mesepisternum extending to anterior border, posterior border of mesepimeron; metasternum; anterolateral and lateral parts of all tergites sternites entirely; front four legs except outer stripe on femora, tibiae and tarsi, apical 1/2 of metacoxa, metatrochanter entirely, extreme base and dorsal stripe on metafemur, metatarsi 2-4 and adjoining part of metabasitarsus and of tarsal joint 5. Fuscoferruginous are: broad triangular spot on tergites 2-5, outer side of metafemur, metatibia except apical 1/5. Wings hyaline, venation including costa, subcosta and stigma dark brown.

Structure: Average length 6.5mm. Antenna 3.4x head width, segments 3 and 4 as 6:5; clypeus (Fig.1) subsquarely incised upto 1/3 of its medial length, labrum broader than long as 4:3 with roundly pointed anterior margin, malar space 2x diameter of median ocellus; LID:IDMO:EL = 7:6:5, OOL:POL:OCL = 3:2:2; frontal area below level of eyes; supraantennal tubercles moderately raised and confluent with

low lying frontal ridges, supraantennal pit prominent, median fovea deep in its anterior 1/2 and posteriorly only shallowly reaching median ocellus; post- and interocellar furrows just indicated, circumocellar furrow indistinct, lateral furrows indicated and ending well before hypothetical hind margin of head; postocellar area subconvex, broader than long as 2:1; mesoscutellum convex, with a medial longitudinal carina on its posterior slope, appendage carinate, ICD:ITD = 1:4; metafemur longer than tibia as 7:6, metabasitarsus longer than following 3 joints combined as 8:7, IATS:MB:OATS = 3:4:2, apical tooth of claw subequal to subapical one (Fig.9). Genitalia: Penis valve (Fig.16), gonoforceps (Fig.25).

Sculpture and pubescence: Head with few, scattered, irregular, inconspicuous punctures, surface opaque; thorax almost impunctate except mesonotum which is punctured like head, surface shining with general oily lustre; abdomen impunctate, shining. Body covered with silvery pubescence except for coloured parts where it appears to be golden.

Female: Not found.

Material examined: Holotype: Male, Uttar Pradesh, Kalamunitop, 2700m, 18.vi.1993. Paratypes: 3 males with same data as holotype.

Individual variations: Triangular spot on tergites 2 & 5 may be faint or missing, a yellowish spot on inner side of apex of metatibia present, black colour on metatibia extends upto 1/3 of its apical part.

Distribution: INDIA: Uttar Pradesh.

Etymology: Species name pertains to triangularly spotted abdomen.

***Pachyprotasis kulwantae* sp.nov.**

(Figs. 2,10,17,26,34,44,48)

Female: Colour: Body black, yellowish white are: underside of scape, clypeus, mandible barring apex, spot on supraclypeal area, lower 1/2 of inner and hind orbits (Fig.48); sagittated apex of mesonotal middle lobe, tegula, spot

before mesoscutellum, mesoscutellum except lateral slopes, a spot each on appendage and metascutellum; lower halves of meso- and metapleura; extreme posterior margins of tergites 3-7 triangularly widened in middle, posterolateral deflexed sides of sternites 3-8 more or less, posterior margins of sternites 3-7; all coxae and trochanters; femora, tibiae and tarsi of front four legs except posterior stripe; basal 1/3 of metatibia. Fuscoferruginous are: apical 2/3 of metafemur except an apical black dot, basal 2/3 of metatibia, all metatarsi. Wings hyaline; costa and basal 1/3 of stigma fulvous, rest of venation piceous.

Structure: Length 7.5mm. Antenna 3.2x head width, segment 3 equal to 4; clypeus (Fig.2) subrectangularly incised upto 1/3 of its medial length, labrum broader than long as 3:2 with rounded anterior margin, malar space 0.5x diameter of median ocellus; LID:IDMO:EL = 1:1:1, OOL:POL:OCL = 3:2:2; frontal area below level of eyes; supraantennal tubercles raised and confluent with slightly indicated frontal ridges, supraantennal pit shallow, median fovea ditch-like in its anterior 1/2 and posteriorly shallowly reaching median ocellus; postocellar furrow shallow, interocellar furrow just indicated, circumocellar furrow absent, lateral furrows distinct and ending just before hypothetical hind margin of head; postocellar area subconvex and as wide as long; mesoscutellum pyramidally raised (Fig.44), appendage carinate, ICD:ITD = 2:5; metafemur longer than tibia as 9:7, metabasitarsus longer than following 3 joints combined as 5:4, IATS:MB:OATS = 3:5:2, apical tooth of tarsal claw longer than subapical one (Fig.10). Lancet (Fig.34) with 20 serrulae.

Sculpture and pubescence: Head covered with dense, minute, conspicuous punctures, surface opaque; thorax with fine, inconspicuous, scattered punctures, surface subshining. Body covered with mixed blackish and silvery pubescence except for coloured parts where it appears golden.

Male: Average length 6.5mm. Similar to female except: underside of antenna yellowish white, metabasitarsus apically ringed with black. **Genitalia:** Penis valve (Fig.26), gonoforceps (Fig.34).

Material examined: Holotype: Female, Uttar Pradesh, Kalamunitop, 2700m, 18.vi.1993. **Paratypes:** 2 males with same data as holotype.

Individual variations: Triangular spots on tergites missing.

Distribution: INDIA: Uttar Pradesh.

Etymology: Species name is in honour of Dr. Kulwant Kaur, wife of the first author, who has given a lot of moral support to run the project under which this work has been completed.

Pachyprotasis cephalopunctata sp.nov.

(Figs. 7,35,46,49)

Female: Colour: Body black, yellowish are: underside of scape, clypeus except a medial basal spot, labrum, mandible barring apex, spot on supraclypeal area, paired spot above bases of antennae, broad inner orbit narrowly continues with a spot on temple (Fig.49), lower 2/3 of hind orbit; anterior and posterolateral margins of pronotum, tegula, lateral side and sagittated apex of mesonotal middle lobe, spot before mesoscutellum, top of mesoscutellum, appendage, spot on metascutellum; a broad transverse band on lower half of mesepisternum, a broad spot on metasternum, posterior margin of mesepimeron, lower 1/2 of metapleuron; a spot each on posteromesal margins of propodeum, narrow posterior borders of tergites 2-4 and entire 9, posterior margin of deflexed lateral sides of all tergites, posterior borders of sternites 4-7; coxae, trochanters and adjoining parts of femora of front four legs; a medial broad spot more or less covering apical 1/2 of metacoxa, metatrochanter and adjoining part of metafemur, anterior aspect of profemur, extreme bases of meso- and metafemora; inner side of pro- and mesotibiae, inner aspects of tarsi of front four legs. Fuscoferruginous are: posterior

aspect of profemur except extreme bases and apices, metatibia except apical 1/3 and a black dot on dorsal aspect of extreme base. Wings hyaline; venation including costa, subcosta and stigma piceous.

Structure: Average length 8mm. Antenna 3.1x head width, segments 3 and 4 as 4:5; clypeus (Fig.5) roundly incised upto 1/2 of its medial length, labrum broader than long as 3:2 with rounded anterior margin, malar space 0.5x diameter of median ocellus; LID:IDMO:EL = 6:7:6, OOL:POL:UCL = 3:2:3; frontal area below level of eyes; supraantennal tubercles and frontal ridges insignificant; supraantennal pit deep, crescent-shaped in outline; median fovea shallowly indicated in its anterior half; post-, inter- and circumocellar furrows distinct; lateral furrows deep, distinct and ending just before hypothetical hind margin of head; postocellar area subconvex, broader than long as 3:2; mesoscutellum flat (Fig.46), appendage carinate, ICD:ITD = 2:7; metafemur longer than tibia as 7:6, metabasitarsus longer than following 3 joints combined as 5:4; IATS:MB:OATS = 3:5:2, apical tooth of tarsal claw equal to subapical one (Fig.12). Lancet (Fig.35) with 23 serrulae.

Sculpture and pubescence: Head with scattered, inconspicuous punctures, surface shining; mesonotum with dense, minute, shallow punctures, surface shining with general oily lustre; mesoscutellum bears few, isolated punctures on its posterolateral slope, surface polished, appendage polished; mesepisternum with dense, deep and confluent punctures, surface shining; mesosterna with dense, fine, shallow punctures, surface shining with general oily lustre; abdomen impunctate, cross-striated, subshining. Body covered with silvery pubescence except yellowish parts where it seems to be golden.

Male: Not found.

Material examined: Holotype: Female, Manipur, Ukhrul, 1700m, 24.v.1993. Paratype:

Nagaland, Zunheboto, 1874m, 1 female 14.v.1993.

Individual variations: Both specimens alike.

Distribution: INDIA: Manipur, Nagaland.

Etymology: Species name pertains to minutely punctured head.

Pachyprotasis politus sp.nov.

(Figs. 8,23,32,42,50)

Female: Colour: Body black, yellowish are: underside of scape, clypeus, labrum, mandible barring apex, spot on supraclypeal area extending beyond base of antenna, inner orbits continues with broad spot on temple, lower 3/4 of hind orbit (Fig.50); pronotum except upper 1/3, tegula, lateral margins of mesonotal middle lobe meeting at apex, spot before mesoscutellum, spot on posterolateral margin of mesonotal lateral lobe, mesocutellum except lateral sides, appendage, metascutellum, parapterum, mesepisternum and mesosternum except a dot at their borders, broad posterolateral margin of mesepimeron; metapleuron except a proximal dot on metepimeron, a broad spot on posteromesal margin of propodeum, narrow posterior margins of tergites 2-6 and 8, broad posterior margin of tergite 9, deflexed lateral sides of all tergites, all sternites entirely; all coxae and trochanters except a black medial stripe on outer ventrolateral aspect of metacoxa; femora, tibiae and tarsi of front four legs except a posterior stripe; metafemur except a stripe on outer side and another one on inner apical 1/3; a faint spot on inner side of metatibia just before apex. Wings hyaline; venation including costa, subcosta and stigma piceous.

Structure: Average length 9mm. Antenna 3.2x head width, segments 3 and 4 equal; clypeus (Fig.8) roundly incised upto 1/4 of its medial length, labrum broader than long as 4:3 with rounded anterior margin having a median notch, malar space 0.5x diameter of median

ocellus; LID:IDMO:EL = 1:1:1, OOL:POL:OCL = 3:2:3; frontal area below level of eyes, supraantennal tubercles and frontal ridges insignificant, median fovea shallowly indicated in its anterior 1/2; post-, inter- and circumocellar furrows insignificant, lateral furrows absent; postocellar area almost flat, broader than long as 3:2; mesoscutellum pyramidal, appendage carinate, ICD:ITD = 2:7; metafemur longer than tibia as 8:7, metabasitarsus longer than 3 following joints combined 4:3, IATS:MB:OATS = 4:8:3, apical tooth of claw subequal to subapical one (Fig.15). Lancet (Fig.42) with 24 serrulae.

Sculpture and pubescence: Head with scattered, irregular punctures, surface subshining; mesonotum finely, densely, minutely punctured; mesoscutellum and appendage impunctate; mesopleuron and mesosternum with dense, shallow punctures, surface shining with general oily lustre; abdomen impunctate, subshining. Body covered with silvery pubescence except for yellowish parts where it appears golden.

Male: Length 7mm. Similar to female excepting underside of antenna, orbit narrowly meeting at posterior end, and metatibia except outer side and extreme tip which are yellowish white; posterior margins of all tergites broadly striped; dot on mesosternum missing; yellow colour more extensive. **Genitalia:** Penis valve (Fig.23), gonoforceps (Fig.32).

Material examined: Holotype: Female, Arunachal Pradesh, Sessa, 1200m, 23.v.1993. Paratypes: West Bengal, Mirik, 1700m, 1 male, 11.v.1993. Sikkim, Namchi, 1600m, 3 females, 18.v.1993. Arunachal Pradesh, Sessa, 1200m, 1 female, 23.v.1993.

Individual variations: All specimens alike.

Distribution: INDIA: West Bengal, Sikkim, Arunachal Pradesh.

Etymology: Species name is based on the smooth and shining surface of body.

Pachyprotasis cuneiventris sp.nov.
(Figs. 24,33,43,45,51)

Female: Colour: Body black, yellowish are: underside of scape and pedicel, clypeus, labrum, mandible barring apex, spot on supraclypeal area extending beyond base of antenna, broad lower 1/2 of inner orbit narrowly continuous with the spot on temple (Fig.51), hind orbit except upper 1/3; broad ventral part of pronotum, tegula except a dot on apical margin, lateral sides of mesonotal middle lobe meeting at apex, spot before mesoscutellum, mesoscutellum except lateral slopes and posterior broader, spot on appendage, metascutellum; mesepisternum except anterodorsal spot, broad posterior border of mesepimeron, mesosternum entirely, metapleuron except upper 1/2 of metepimeron, metasternum, extreme posterior margin of propodeum, medial triangular spot on tergites 2-7, tergite 9 entirely, deflexed lateral sides of all tergites, all sternites entirely; all coxae and trochanters, pro- and mesofemora except a stripe on apical posterodorsal aspect, metafemur except a stripe each on outer and inner aspects of apical 1/2, extreme base of metabasitarsus, tibiae and tarsi of front four legs except a stripe on outer aspect. Wings hyaline; venation including costa, subcosta and stigma black.

Structure: Average length 7.5 mm. Antenna 3.4x head width, segments 3 and 4 as 9:8; clypeus (Fig.4) arcuately incised upto 1/3 of its medial length, labrum broader than long as 3:2 with rounded anterior margin having a broad medial notch, malar space 0.5x diameter of median ocellus; LID:IDMO:EL = 1:1:1, OOL:POL:OCL = 5:4:5; frontal area below level of eyes; supraantennal tubercles and frontal ridges insignificant, median fovea absent, supraantennal pit deep; post-, inter- and circumocellar furrows absent, lateral furrows distinct and reaching hypothetical hind margin of head; postocellar area subconvex, broader than long as 5:4; mesoscutellum

convex (Fig.45), appendage carinate, ICD:ITD = 2:7; metafemur longer than tibia as 8:7, metabasitarsus longer than following 3 joints combined as 5:4, IATS:MB:OATS = 5:8:4; apical tooth of tarsal claw equal to subapical one (Fig.12). Lancet (Fig.43) with 23 serrulae.

Sculpture and pubescence: Head almost impunctate except few, scattered, shallow punctures on and around frontal area, surface shining; mesoscutellum with dense, shallow punctures on its posterior and lateral slopes, appendage impunctate, polished; mesepisternum with dense, shallow, irregular punctures, surface shining; mesosternum with dense, minute, shallow punctures, surface shining with general oily lustre; abdomen cross-striated, surface shining. Body covered with silvery pubescence except for yellowish parts where it seems to be golden.

Male: Average length 5.5mm. Similar to female except black stripe on outer aspects of metacoxa and metatibia. Genitalia: Penis valve (Fig.24), gonoforceps (Fig.33).

Material examined: Holotype: Female, Nagaland, Pfutsero, 2100m, 20.v.1993. Paratypes: Nagaland, Vizho-Razho, 1600m, 2 females, 3 males, 11.v.1993; Zunheboto, 1874m, 1 female, 16.v.1993; Pfutsero, 2100m, 4 females, 1 male, 20.v.1993, 2 females 3 males, 14.v.1994; Akuiuto, 1500m, 3 females, 4 males, 10.v.1994. Manipur, Ukhrul, 1700m, 2 females, 23.v.1993. Meghalaya, Ladmawphlang, 1600m, 1 female, 1 male, 29.iv.1994.

Individual variations: Spot on inner orbit broadly continuous with temple in some males. Mesosternum with black spot on upper 1/2.

Distribution: INDIA: Nagaland, Manipur, Meghalaya.

Etymology: Species name pertains to abdomen having coloured triangularly elongated band.

Pachyprotasis nigricans sp.nov.

(Figs. 3,11,36,52)

Female: Colour: Body black, pale

yellowish are: clypeus except extreme base and anterior margin, labrum except medial spot, mandibles barring apex, spot on supraclypeal area, narrow inner orbit confluent with streak-like spot on temple (Fig.52), basal 2/3 of hind orbit; extreme anterior and posterolateral angles of pronotum, droplet-like spot on anterior aspect of mesepisternum, posterolateral angle of mesepimeron; deflexed lateral sides of all tergites faintly, posterior border of sternites 2-7; anterior aspect of proleg, anterior aspect of mesocoxa except a medial longitudinal band, anterior aspect of metatrochanter, dorsal aspect of mesofemur, inner aspects of mesotibia and tarsi; a broad medial apical spot on anterior aspect and a longitudinal stripe on anterolateral aspect of metacoxa, innerside of metatrochanter, extreme base of metabasitarsus, metatarsi 3 and 4 more or less. Wings hyaline; venation including costa, subcosta and stigma piceous.

Structure: Average length 7.5mm. Antenna 2.7x head width, segments 3 and 4 as 5:4; clypeus (Fig.3) arcuately incised upto 1/3 of its medial length, labrum broader than long as 3:2 with rounded anterior margin, malar space 0.5x diameter of median ocellus; LID:IDMO:EL = 3:3.5:3, OOL:POL:OCL = 3:2:2; frontal area almost at level of eyes; supraantennal tubercles and frontal ridges insignificant, supranntennal pit shallow, median fovea shallow and broadly indicated; post-, inter- and circumocellar furrows absent; lateral furrows shallow and ending at hypothetical hind margin of head; postocellar area flat, as wide as long, with median longitudinal furrow; mesoscutellum convex, appendage carinate, ICD:ITD = 1:3; metafemur longer than tibia as 7:6, metabasitarsus longer than following 3 joints combined as 5:4, IATS:MB:OATS = 3:5:2, apical tooth of tarsal claw longer than subapical one (Fig.11). Lancet (Fig.36) with 16 serrulae.

Sculpture and pubescence: Head with dense, minute and shallow punctures, surface between punctures micropunctured, surface opaque; thorax punctured like head, surface

opaque; abdomen cross-striated, surface dull. Body covered with blackish pubescence.

Male: Not found.

Material examined: Holotype: Female, Uttar Pradesh, Flower valley, 3200m, 27.vii.1993. Paratype: Uttar Pradesh, Gobind Dham, 3000m, 1 female, 28.vii.1993.

Individual variations: Both specimens alike.

Distribution: INDIA: Uttar Pradesh.

Etymology: Species name alludes to general black colour of body.

***Pachyprotasis salebrousa* sp.nov.**

(Figs. 15,18,27,37,53)

Female: Colour: Body black, yellowish white are: clypeus except a basal medial spot and extreme anterior margin, labrum, mandible barring apex, inner orbit narrowly continues with temple spot (Fig.53), lower 2/3 of hind orbit; anterior and posterolateral margins of pronotum, basal 1/2 of tegula, spot on anterolateral margins of pronotum, basal 1/2 of tegula, spot on anterolateral margin of mesonotal middle lobe not meeting at apex, top of mesoscutellum, appendage, spot on metascutellum; an irregular broad spot on anterodorsal and another irregular droplet-like spot on posteroventral margin of mesepisternum, a broad stripe along posterolateral margin of mesepimeron, narrow posterior margin of metasternum continues with broad spot on posterior margin of metepimeron; narrow posterior margin of tergite 9; spot on anterolateral, posterolateral and underturned sides of all tergites, posterior margins of sternites 3-7; anterior aspect of procoxa except a median fuscous spot, extreme apical tips of meso- and metacoxae; all trochanters except paired dot, one each on anterior and posterior aspects; femur, tibia and tarsi of proleg anteriorly; basal 1/3 of femur, tibia and tarsi of mesoleg anteriorly; basal 1/2 of metafemur; metatarsal joint 2 anteriorly; metatarsal joints 3 and 4

entirely; basal and anterior aspects of metatarsal joint 5. Wings hyaline; costa except apical swollen part fuscoferruginous, rest of venation piceous.

Structure: Average length 7mm. Antenna 3x head width, segments 3 and 4 as 8:7; clypeus (Fig.5) subsquarely to roundly incised upto 1/2 of its medial length, labrum broader than long as 5:4 with rounded anterior margin, malar space 0.5x diameter of median ocellus; LID:IDMO:EL = 4:5:3.5, OOL:POL:OCL = 3:2:2; frontal area raised upto level of eyes; supraantennal tubercles and frontal ridges insignificant, supraantennal pit shallow, median fovea insignificantly shallowly indicated; post-, inter- and circumocellar furrows shallow, lateral furrows distinct; postocellar area broader than long as 2:1; mesoscutellum flat with a carina on its posterior slope, appendage carinate, ICD:ITD = 1:4; metafemur longer than tibia as 8:7; metabasitarsus longer than following 3 joints combined as 5:4, IATS:MB:OATS = 9:12:7, apical tooth of tarsal claw longer than subapical one (Fig.15). Lancet (Fig.37) with 18 serrulae.

Sculpture and pubescence: Head with dense, minute and shallow punctures, surface between punctures microsculptured, surface opaque; thorax punctured like head, surface opaque; abdomen cross-striated, surface dull. Body covered with mixed blackish and silvery pubescence except yellowish parts where it is golden.

Male: Average length 5.5mm. Similar to female except: lower 1/2 including broad posterolateral margins of pronotum yellowish white, all yellowish white spot on mesopleuron of female comparatively broader in male, pro- and mesocoxae yellowish entirely, metacoxa with inner and outer ventrolateral stripes. Genitalia: Penis valve (Fig.18), gonoforceps (Fig.27).

Material examined: Holotype: Female, Arunachal Pradesh, Bomdila, 2550m, 6.v.1992. Paratypes: 4 females, 41 males with same data

as holotype, 7 males, 9.v.1992, 2 females, 1 male, 26.v.1993.

Individual variations: All specimens alike.

Distribution: INDIA: Arunachal Pradesh.

Etymology: Species name pertains to subrugose head.

Pachyprotasis hargurmeeti sp.nov.

(Figs. 19,28,38,54)

Female: Colour: Body black; yellowish pale are: under side of scape, clypeus, labrum, mandible barring apex, spot on supraclypeal area extending beyond base of antenna; lower 1/2 of inner orbit not confluent with temple spot (Fig.54), lower 2/3 of hind orbit; narrow anterolateral and broad posterolateral margins of pronotum; basal 1/3 of tegula, medial oblong spot on mesoscutellum, spot each on appendage and metascutellum; most of anterior aspect and transverse stripe on posteroventral 1/2 of mesepisternum, mesosternum, posterolateral margins of mesepimeron; lower 1/2 of metapleuron, metasternum; extreme posterior border of tergites 2-4, tergite 9 except anterolateral margins, deflexed lateral sides of all tergites, all sternites; front four coxae and trochanters; femur, tibiae and tarsi of front four legs except a stripe on outer aspect; metacoxa except a stripe on outer ventral aspect, metatrochanter, metafemur except a longitudinal stripe on its outer aspect widened apically to cover almost 1/2 of its inner aspect. Wings hyaline; venation including costa, subcosta and stigma piceous.

Structure: Length 8mm. Antenna 3x head width, segments 3 and 4 as 8:7; clypeus (Fig.2) subrectangularly incised upto 1/3 of its medial length, labrum broader than long as 3:2 with rounded anterior margin, malar space 0.75x diameter of median ocellus; LID:IDMO:EL = 3:3.5:3, OOL:POL:OCL = 3:2:2; frontal area at level of eyes; supraantennal pit shallow, median fovea absent; post-, inter- and circumocellar

furrows absent, lateral furrows shallow; postocellar area as long as wide; mesoscutellum subconvex, appendage carinate, ICD:ITD = 2:7; metafemur equal to tibia, metabasitarsus longer than following 3 joints combined as 7:6, IATS:MB:OATS = 4:10:3, apical tooth of tarsal claw almost equal to subapical one (Fig.12). Lancer (Fig.38) with 22 serrulae.

Sculpture and pubescence: Head almost impunctate except shallow, scattered punctures on and around frontal area, surface shining; thorax except polished, impunctate appendage, with dense, minute, shallow punctures more conspicuous and confluent on posterior slope of mesoscutellum and on convexity of mesepisternum, surface shining with general oily lustre; abdomen impunctate, shining. Body covered with silvery pubescence.

Male: Average length 7mm. Similar to female. Genitalia: Penis valve (Fig.19), gonoforceps (Fig.28).

Material examined: Holotype: Female, Uttar Pradesh, Kalamunitop, 2700m, 21.vi.1991. Paratypes: 3 males with same data as holotype. Uttar Pradesh, Mandal, 2300m, females, 7 males 16.vi.1994. Himachal Pradesh, Kufri, 2500m, 2 males, 28.vi.1994.

Individual variation: All specimens alike.

Distribution: INDIA: Uttar Pradesh, Himachal Pradesh.

Etymology: Species is named after its collector, Mr. Hargurmeet Singh.

Pachyprotasis foveatus sp.nov.

(Figs. 14,22,31,39,55)

Female: Colour: Body black, yellowish are: underside of scape, clypeus, labrum, mandible barring apex, spot on supraclypeal area extending triangularly well above base of antenna, lower 1/2 of inner orbit narrowly continuous with a prominent spot on temple (Fig.55), lower 2/3 of hind orbit; broad ventral part of pronotum, basal 1/2 of inner margin of tegula, lateral margins of mesonotal middle lobe

meeting at apex, spot before mesoscutellum; a spot each on mesoscutellum, appendage and metascutellum; mesepisternum except a rectangular spot on lower 1/2 covering posterior 1/2 upto coxal rim, mesepimeron except a stripe along pleural suture, mesosternum, metapleuron except irregular stripe along pleural suture, posteromesal margins of propodeum, posterior margins of tergites 2-7, tergite 9 entirely, deflexed lateral margin of all tergites, all sternites entirely; coxae and trochanters of front four legs, metacoxa except a stripe on apical 1/2 of outer ventral aspect, metatrochanter except a spot on ventral aspect; femora, tibiae and first four tarsal joints of front four legs except a stripe on outer side; claw joint except apices of front four legs; metafemur except a spot on outer side of its base and another broad irregular spot covering apical 1/2 of anterodorsal aspect. Wings hyaline; venation including costa, subcosta and stigma piceous.

Structure: Average length 9mm. Antenna 2.6x head width, segments 3 and 4 as 8:7; clypeus (Fig.2) subrectangularly incised upto 1/3 of its medial length, labrum broader than long as 3:2 with rounded anterior margin, malar space 0.5x diameter of median ocellus; LID:IDMO:EL = 1.5:1:1.25, OOL:POL:OCL = 3:2:2, frontal area slightly below level of eyes; supraantennal tubercles and frontal ridges insignificant, median fovea shallow ditch-like in its anterior 1/2; post-, inter- and circumocellar furrows just indicated; lateral furrows distinct and ending well before hypothetical hind margin of head; postocellar area broader than long as 5:4; mesoscutellum flat, appendage carinate, ICD:ITD = 1:4; metafemur longer than metatibia as 8:7, metabasitarsus longer than following 3 joints combined as 8:7, IATS:MB:OATS = 2:6:1.5, apical tooth of tarsal claw longer than subapical one (Fig. 14). Lancet (Fig.39) with 23 serrulae.

Sculpture and pubescence: Head with dense, minute, shallow punctures more conspicuous on and around frontal area, surface

shining; thorax with dense, minute, distinct punctures except posterior slope of mesoscutellum that bears large, shallow, irregular punctures, surface shining with general oily lustre; abdomen impunctate, subshining. Body covered with silvery pubescence except for yellowish parts where it is golden.

Male: Average length 6mm. Similar to female. Genitalia: Penis valve (Fig.22), gonoforceps (Fig.31).

Material examined: Holotype: Female, Uttar Pradesh, Rana, 2000m, 20.vi.1992. Paratypes: Himachal Pradesh, Sojha, 3000m, 1 female, 23.vi.1990. Uttar Pradesh, Kalamunitop, 2700m, 2 females 26.vi.1991; Auli, 2450m, 2 females, 7.vi.1992; Chopta, 3000m, 1 female, 25.vi.1992, 8 females, 15.v.1994; Munsyari, 2300m, 1 female, 2.vi.1993; Mandal, 2400m, 4 males, 16.v.1994. Sikkim, Gangtok, 1600m, 2 females, 14.v.1993.

Individual variations: All specimens alike.

Distribution: INDIA: Himachal Pradesh, Uttar Pradesh.

Etymology: Species name pertains to characteristic shape of median fovea.

Pachyprotasis pleuricingulata sp.nov.
(Figs. 41,20,29,40,56)

Female: Colour: Body black, yellowish pale are: underside of scape, clypeus, labrum, mandible barring apex, a spot on supraclypeal area extending beyond base of antenna, lower 1/2 of inner and hind orbits, temple spot (Fig.56), posterolateral margin of mesonotal middle lobe meeting at apex, mesoscutellum except lateral and posterior border, appendage, metascutellum, transverse band on lower 1/2 of mesepisternum broadened anteriorly to continue with spot on mesosternum, posterolateral margin of mesepimeron, spot on posterodorsal margin of metasternum confluent with spot on posterior 1/2 of metepimeron; medial spots on extreme posterior margins of tergites 2-8, tergite

9 entirely, deflexed posterolateral sides of tergites 2-4, deflexed lateral sides of tergites 5-9, posterior margin of sternites 3-7; all coxae and trochanters, pro- and mesofemora except black dorsal dot on extreme proximal margin, metafemur except apical 2/5, broad inner sides of all tibiae and tarsi of front four legs. Wings hyaline; venation including costa, subcosta and stigma piceous.

Structure: Length 8 mm. Antenna 3x head width, segments 3 and 4 as 9:8; clypeus (Fig.4) arcuately incised upto 1/3 of its medial length, labrum broader than long as 3:2 with rounded anterior margin having medial notch, malar space 0.5x diameter of median ocellus; LID:IDMO:EL = 3:3.5:3, OOL:POL:OCL = 2:1:1; frontal area slightly below level of eyes; supraantennal tubercles and frontal ridges insignificant, supraantennal pit just indicated, median fovea absent; post-, inter- and circumocellar furrows shallow, lateral furrows shallow; postocellar area broader than long as 5:4; mesoscutellum subconvex, appendage carinate, ICD:ITD = 2:7; metafemur longer than metatibia as 8:7, metabasitarsus longer than following 3 joints combined as 4:3, IATS:MB:OATS = 2:5:1.25, apical tooth of tarsal claw as long as subapical one (Fig. 12). Lancet (Fig. 40) with 21 serrulae.

Sculpture and pubescence: Head with scattered, shallow punctures more conspicuous on frontal area, surface shining; mesonotum punctured like head, surface smooth and shining with general oily lustre; mesoscutellum and appendage impunctate and polished; mesepisternum with dense, prominent, confluent punctures; mesosternum almost impunctate; abdomen cross-striated, subshining. Body covered with silvery pubescence except auratus parts where it appears golden.

Male: Average length 5.5mm. Similar to female except: underside of antenna yellowish white, black stripe on outer ventrolateral side of metacoxa present. Genitalia: Penis valve (Fig.20), gonoforceps (Fig.29).

Material examined: Holotype: Female, Nagaland, Pfutsero, 2100m, 19.v.1993. Paratypes: 4 females with same data as holotype, 1 female, 2 males, 14.v.1994; Akuiuto, 1500m, 10 males, 10.v.1994. Meghalaya, Ledmawphlang, 1600m, 1 female, 1 male, 29.iv.1994.

Individual variations: A stripe on outside of metatibia present, posterior angles in middle of all or some tergites black, yellow lateral margin of mesonotal middle lobe not meeting at apex in some males only.

Distribution: INDIA: Nagaland, Meghalaya.

Etymology: Species name pertains to coloured band of mesopleura on its lower half.

Pachyprotasis punamae sp.nov.
(Figs. 5,12,41,57)

Female: Colour: Body black, yellowish are: underside of scape, clypeus, labrum, mandible barring apex, spot on supraaclypeal area extending above base of antenna, broad lower 1/2 of inner orbit extremely narrowly continuous with spot on temple (Fig.57), lower 2/3 of hind orbit; anterior and posterolateral margins of pronotum, basal 3/4 of tegula, lateral margins of mesonotal middle lobe meeting at apex, mesoscutellum and spot anterior to it, appendage, metascutellum, anterior broad aspect of mesepisternum continuous with a spot on mesosternum, posterior margin of mesepimeron, lower 1/2 of metapleuron continuous with metasternum; posterior margins of tergites 2-8 triangularly widened in middle, tergite 9 entirely, posterior margins of deflexed lateral sides of tergites 2 and 3, deflexed lateral sides of tergites 4-9 more or less, posterior borders of sternites 3-7; front four legs except outer stripe on tibiae and tarsi; coxa, trochanter and basal 3/4 of femur of metaleg. Wings hyaline; venation including costa, subcosta and stigma piceous.

Structure: Average length 8.5mm. Antenna 3.2x head width; segments 3 and 4 as

8:7; clypeus (Fig.5) subsquarely to roundly incised upto 1/2 of its medial length, labrum broader than long as 3:2 with rounded anterior margin, malar space 0.5x diameter of median ocellus; LID:IDMO:EL = 1:1:1, OOL:POL:OCL = 3:2:3; frontal area at level of eyes; supraantennal tubercles and frontal area at level of eyes; supraantennal tubercles and frontal ridges insignificant, supraantennal pit shallow, median fovea absent, postocellar furrow shallow, interocellar furrow indicated, circumocellar furrow indistinct, lateral furrows shallow; postocellar area broader than long as 3:2; mesoscutellum convex, appendage carinate, ICD:ITD = 1:3.5; metafemur longer than tibia as 9:8, metabasitarsus longer than following 3 joints combined as 5:4, IATS:MB:OATS = 3:6:2, apical tooth of tarsal claw equal to subapical one (Fig.12). Lancet (Fig.41) with 22 serrulae.

Sculpture and pubescence: Head almost impunctate except shallow, scattered punctures, surface shining; mesonotum with dense, shallow, irregular punctures, surface shining; mesoscutellum with distinct, irregular punctures on its posterior slope, surface polished, appendage impunctate, polished; mesepisternum with distinct, large, deep, irregular punctures, surface shining with general oily lusture; mesosternum with fine, dense, shallow punctures, surface shining; abdomen cross-striated, subshining. Body covered with silvery pubescence except yellowish parts where it is golden.

Male: Not found.

Material examined: Holotype: Female, Manipur, Ukhrul, 1700m, 22.v.1993. Paratypes: West Bengal, Mirik, 1700m, 1 female, 10.v.1993. Sikkim, Namchi, 1600m, 1 female, 16.v.1993. Manipur, Ukhrul, 1700m, 1 female, 22.v.1993. Nagaland, Pfutsero, 2100m, 2 females, 19.v.1993, 2 females, 14.v.1994; Akuiuto, 1500m, 4 females, 10.v.1994.

Individual variations: Yellowish are: lower 2/3 of inner orbit, lower 1/2 of mesepisternum, posteromesal margins of

propodeum, posterior margins of tergites 2 and 8, deflexed lateral sides of all tergites, sternites 6 and 7 entirely, inner median spot on tibia and extreme base of basitarsus of metaleg. Black are: apical 1/2 of tegula, lateral and posterior border of mesoscutellum, outer aspect of mesofemur.

Distribution: INDIA: Manipur, Sikkim, West Bengal, Nagaland.

Etymology: Species is named after Dr. Punam, wife of co-author, who has helped a lot to collect sawflies from various localities while collecting her elaterid beetles.

Pachyprotasis frontatus sp.nov.

(Figs. 6,13,21,30,58)

Male: Colour: Body black, yellowish white are: underside of antenna, clypeus, labrum, mandible barring apex, spot on supraclypeal area extending well above base of antenna, broad inner orbit continuous with prominent spot on temple (Fig.58), lower 3/4 of hind orbit; broad ventral half of pronotum, tegula, streak on lateral margins of mesonotal middle lobe not meeting apex, spot before mesoscutellum, top of mesoscutellum, spot each on appendage and metascutellum; mesepisternum, broad posterior margin of mesepimeron, mesosternum, metapleuron except spot on its upper 1/2, metasternum, medial triangular spot on tergites 3 and 4, deflexed lateral sides of all tergites, all sternites more or less; all coxae and trochanters, pro- and mesofemora except outer dorsolateral stripe on apical 1/3, metafemur except outer and inner aspects of apical half, tibiae and tarsi of front four legs except outer stripe, stripe on inner aspect of metatibia broadening just before its apex, extreme bases and apices of basal two metatarsal joints, metatarsi 3 and 4 entirely, extreme bases of claw joints. Wings hyaline; venation including costa, subcosta and stigma piceous.

Structure: Average length 5.5 mm. Antenna 4x head width, segments 3 and 4 as 4:5; clypeus (Fig.6) shallowly, semicircularly

incised, labrum broader than long as 3:2 with truncate anterior margin, malar space 1x diameter of median ocellus; LID:IDMO:EL = 4:4:3, OOL:POL:OCL = 3:2:2; frontal ridges insignificant, supraantennal pit shallow, median fovea in form of semicircular pit in its anterior half and shallowly reaching broad shallowly depressed posterior half anterior to median ocellus; post- and interocellar furrows shallow, circumocellar furrow absent; lateral furrows deep, distinct and ending abruptly well before hypothetical hind margin of head; postocellar area subconvex, broader than long as 2:1; mesoscutellum subconvex, appendage faintly carinate, ICD:ITD = 1:4; metafemur longer than tibia as 8:7, metabasitarsus longer than following 3 joints combined as 4:3, IATS:MB:OATS = 3:5:2, apical tooth of claw equal to subapical one (Fig.13). Genitalia: Penis valve (Fig.21), gonoforceps (Fig.30).

Sculpture and pubescence: Head covered with dense micropunctures, more so on its frontal area, surface shining; thorax with fine, dense and shallow punctures, surface shining with general oily lustre; abdomen impunctate, subshining. Body

covered with silvery pubescence except for yellowish parts where it is golden.

Female: Not found.

Material examined:- Holotype: Male, West Bengal, Darjeeling, 2280m, 9.v.1993. Paratype: 1 male with same data as holotype.

Individual variations: Both specimens alike.

Distribution: INDIA: West Bengal.

Etymology: Species name pertains to characteristic shape of frontal area.

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